# *Micromyrtus grandis* (Myrtaceae), a new species from New South Wales

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## Abstract

*Hunter, J.T., Quinn, F.C. and Bruhl, J.J. (Department of Botany, University of New England, Armidale, NSW 2351, Australia) 1996.* Micromyrtus grandis *(Myrtaceae), a new species from New South Wales.* Telopea *7(1): 77–81.* **Micromyrtus grandis** J.T. Hunter, a new species found during a recent floristic survey of the granitic outcrop flora of the New England Batholith is described, compared with related species, and assessments of conservation status and abundance are presented.


## Introduction

During a recent floristic survey of granitic outcrops of the New England Batholith by one of us (Hunter), an unusual specimen of *Micromyrtus* was collected within the Severn River Nature Reserve on the North Western Slopes of New South Wales. The taxon was readily recognisable as being distinct from other *Micromyrtus* species within the region by its size and habit. Examination of previous treatments (Green 1980, Stanley 1986, Wilson 1991), and material held at NSW, BRI and NE has revealed that this taxon can be distinguished at specific rank, and is most closely allied to *M. leptocalyx* (F. Muell.) Benth.

The species is apparently restricted to one porphyritic ridge within the Severn River Nature Reserve and a private property at the base of the same ridge. Many plants were found on the ridge where the species dominates or co-dominates communities. Assessments of population size were made and surrounding comparable areas were searched unsuccessfully for further populations.

## Methods

Forty-four samples were taken from representative plants seen in the field. Observations and measurements were made from these specimens (vouchers are listed below). Age-class distribution and population size were estimated during August 1995 by placement of two 90 m by 30 m belt transects in an 'L' shape across and down the ridge on which the plants were found. Population size was estimated by extrapolation of the numbers found within the transects to likely geographical distribution, based on aerial photographs and on ground searching.

## Taxonomy

**Micromyrtus grandis** *J.T. Hunter*, **sp. nov.**

affinis *M. leptocalyci* (F. Muell.) Benth., sed foliis latioribus, floribus minoribus, glandibus versus apicem antherarum tribus differt.

**Type:** New South Wales: North Western Slopes: Severn River Nature Reserve (29°26'S 151°21'E), on porphyritic rocky outcrop, alt. 710 m, *Hunter 3350, Quinn & Nano*, 8 Aug 1995 (holo: NSW, iso: AD, BRI, CANB, HO, MEL, NE, PERTH).

Monoecious shrub 1–4(–6) m tall, erect, fruticose to columnar. Branching pattern single stemmed to mallee-like. *Bark* stringy, orange-brown, curling off in linear strips starting with the younger branches, on the stems and older branches forming masses of curling exfoliated bark within the centre of the shrub. *Stems* woody, terete and glabrous. *Petioles* glabrous, 0–0.3 mm long. *Leaves* simple, opposite, decussate, obovate, elliptic to oblong, flat to recurved, mostly bent just above the petiole, strongly keeled in cross section, sometimes tinged red to brown on the apex and margins, 0.5–4.1 mm long, 0.6–1.4 mm wide, older leaves on the larger stems appressed and flat; margins entire to irregularly minutely serrulate, often becoming more entire with age; apex obtuse (rarely shortly acute at keel); base cuneate to obtuse. *Oil dots* conspicuous, larger abaxially in 2 distinct rows one on either side of the keel, smaller oil dots scattered on both surfaces, containing aromatic oil. *Flowers* axillary and solitary. *Bracteoles* 2, 0.7–0.9 mm long, strongly keeled with an incurved tip, caducous before the expansion of the peduncle prior to anthesis and leaving distinct scars at the peduncle apex. *Peduncle* 0.3–1.6 mm long, slightly recurved, red turning brown with age, held for up to 3 seasons. *Hypanthium* 0.9–1.6 mm long, 0.6–1.1 mm wide, glabrous, obconical. *Corolla* actinomorphic (although the hypanthium is slightly incurved and dorsiventrally flattened). *Calyx* petaloid, glabrous, lime- to olive-green. *Sepals* 5, 0.1–0.3 mm long, 0.2–0.8 mm wide. *Petals* 5, 0.5–1.2 mm long, 0.6–1.1 mm wide, white to cream and rarely pink at the apex, imbricate in bud, glabrous or rarely with minute papillae on the margin, sometimes keeled, with 2 rows of oil dots on either side of the keel. *Stamens* 5,

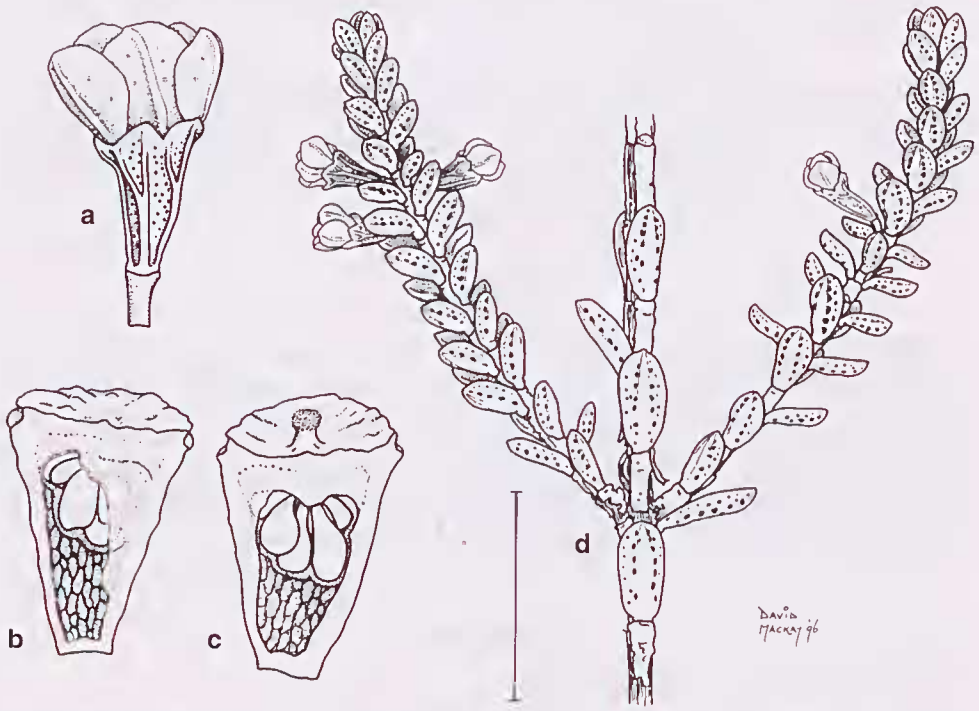


**Fig. 1.** *Micromyrtus grandis* **a,** flower; **b, c,** fruits with sections of the fruit wall removed to reveal the single loculus and multiple seeds; **d,** branch with leaves and flowers, some leaves deciduous (a–d from *Hunter 3350, Quinn & Nano*). Scale bar: a = 2 mm; b, c, = 1 mm; d, = 5 mm.

antepetalous; filaments 0.1–0.3 mm long; anthers 0.1–0.3 mm long, red to brown, dorsifixed, divergent, dehiscence transverse and introrse, connective bearing three apical oil glands, the central one most prominent, ovoid and projecting forward, the other two more or less orbicular and visible abaxially. *Ovary* half inferior. *Locules* 1. *Ovules* 6 rarely 5, collateral. *Style* terete, 0.1–0.5 mm long, persistent in the fruit. *Stigma* capitate, minutely papillate. *Fruit* a scarcely enlarged, simple, dry indehiscent nut, 0.9–1.6 mm long, 0.6–1.1 mm wide, brown, obconical, with 5 major ribs (4 ribs branched once or twice, 1 rib usually unbranched). *Seed* 0.3–0.5 mm long, 0.2–0.4 mm wide, smooth, brown, pyriform. *Pollination* probably entomophilous. *Dispersal* via fruit. *Flowering* time July to September. *Fruiting* time August to September. Fig. 1.

**Specimens examined:** New South Wales: All topotypes: North Western Slopes: Severn River Nature Reserve, on porphyritic rocky outcrop, alt. 740 m, *Hunter 3143*, 15 July 1995 (NE); *Hunter 3366–3367, Quinn & Nano*, 8 Aug 1995 (AD); *3368–3370* (BRI); *3371–3373* (CANB); *3374–3375* (DNA); *3376–3377* (HO); *3378–3379* (K); *3380–3381* (L); *3382–3383* (MEL); *3384–3385* (MO); *3350–3365* (NE); *3392–3394*, (NSW), *3386–3387* (PERTH); *3388–3389* (PRE); *3390–3391* (UNSW).

A number of species has recently been recognised within the *M. leptocalyx* group in Queensland (A. Bean, pers. comm., August 1995). Discussions with Bean and examination of material have confirmed and highlighted morphological differences, particularly in floral morphology, between *M. grandis* and *M. leptocalyx* sens. lat. as currently circumscribed (Table 1) and sens. strict. (Bean).

Notes: This species appears not to be attacked by any insect as all leaves and stems seen were undamaged and no galls were found. The very ornamental orange-brown bark and dense growth with much green foliage give this plant horticultural potential. The stripping bark is only known from this species, *M. leptocalyx*, and a form of *M. sessilis* from the Bolivia Range, NSW.

**Distribution:** The majority of the population is apparently restricted to one ridge within the Severn River Nature Reserve, with some plants on an adjoining property (*Clayton Chase*) at the base of the same ridge. Despite surveying similar outcrop habitat on the same geology, three further days in the surrounding country, a day at Pindari Dam, three days on similar land on private properties along the Severn River (*The Willows, Rocky Glen*) and four days at Kings Plains National Park, no further populations have been found. However, further searches on the northern bank of the Severn River could be fruitful.

Habitat: Found in open and exposed situations in heath and low woodland on porphyritic outcrops between 600 and 750 m altitude. The taxon is found rooted

**Table 1. Comparison of selected characters for *Micromyrtus leptocalyx* (Bentham 1867: 65, Stanley 1986) and *M. grandis*.**

| | *Micromyrtus leptocalyx* | *Micromyrtus grandis* |
|---|---|---|
| **Substrate** | Sandy and gravelly soils and sandstone outcrops | Shallow soil on porphyritic outcrops |
| **Shrub height (m)** | Up to 2.5 | Up to 4(–6) |
| **Leaf length (mm)** | 1–5 | 0.5–4.1 |
| **Leaf width (mm)** | c. 0.5 | 0.6–1.4 |
| **Leaf shape** | Linear to narrowly obovate | Obovate to elliptic to oblong |
| **Hypanthium length (mm)** | to 2.5 | 0.9–1.6 |
| **Petal length (mm)** | 0.7–2 | 0.5–1.2 |
| **Connective gland number** | 1 | 3 (1 central + 2 lateral) |
| **Ovule number** | 6–8 | 5–6 |

within crevices of bare rocky slopes and in shallow soil surrounding the bare slopes. Associated species within low woodland include *Eucalyptus crebra, Allocasuarina inophloia, Acacia* sp. aff. *pubifolia, Xanthorrhoea johnsonii;* in heath the associations were *Leptospermum novae-angliae, Micromyrtus sessilis* and *Lencopogon neo-anglicus.*

**Etymology:** The specific epithet *grandis* refers to the overall size of this species, which is the largest yet known in the genus.

**Population structure:** Large numbers of this species were found at the only known locality. Extrapolating the data presented in Table 2 to a total predicted habitat area of at least 4 ha, the number of plants is estimated to be more than 1,500. Further work is needed to confirm the standing population size. The distribution of size–class structure indicates that very few juveniles are present in the population. This may be due to the age of the communities, as it was noted that fire had not occurred in the area for some time.

**Conservation status:** Due to the very restricted occurrence of *M. grandis;* i.e. only on one ridge, its relatively small population, and the proposed land use (goat grazing) of the private property, a preliminary ROTAP code (Briggs & Leigh 1988) of 2EC is suggested. Because of its rarity and ornamental nature, cuttings of *M. grandis* have been distributed to local members of the Society for Growing Australian Plants in order to establish it in cultivation.

**Conclusion:** *Micromyrtus grandis* is clearly distinct from, but closely related to *M. leptocalyx*. Further work on the phylogenetic and biogeographical relationships of this species is warranted, as well as investigation of its population size, distribution, ecology and likely threats.

The key for the New South Wales species of *Micromyrtus* by Wilson (1991: 186) should be amended as follows:

2* Ovules 4–6 ; hypanthium > 0.9 mm long.

3 Leaves with keel ciliate; margins of sepals fimbriate ..... 3. **M. blakelyi**

3* Leaves with keel glabrous; margins of sepals minutely toothed to entire

4 Hypanthium with 2 lateral pairs of ribs flanking it ..... 4. **M. ciliata**

4* Hypanthium with 5–8 ribs, ± equally spaced

5 Hypanthium 5-ribbed

6. Leaves linear to oblanceolate, 0.5–0.8 mm wide; flowers ± sessile ..... 5. **M. sessilis**

6* Leaves obovate, oblanceolate to oblong, 0.6–1.4 mm wide; flowers distinctly pedunculate ..... 6. **M. grandis**

5* Hypanthium 8-ribbed ..... 7. **M. striata**

**Table 2. Number and size-class distribution of *Micromyrtus grandis* within two 90 × 30 m belt transects.**

| Transect | Individual per size-class | | | Total |
|---|---|---|---|---|
| | 0–0.5 m tall | 0.5–2 m tall | 2 m + tall | |
| 1 | 7 | 51 | 41 | 99 |
| 2 | 6 | 75 | 63 | 144 |
| Totals | 13 | 126 | 104 | 243 |

## Acknowledgments

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